

**REMARKS**

This Application has been carefully reviewed in light of the Final Office Action mailed April 26, 2005 ("Office Action"). Claims 1-26 were rejected. Reconsideration and favorable action are respectfully requested in view of the following remarks.

**Section 103(a) Rejections**

Claims 1, 6, 8, 9, 10, 11, 14-16, 24-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,605,795 issued to Arcella, et al. ("*Arcella*") in view of U.S. Patent No. 6,122,564 issued to Koch, et al. ("*Koch*") and either Japanese Patent No. 2002-239,767 issued to Kanamaru, et al. ("*Kanamaru*") or Japanese Patent No. 2001-287,064 issued to Owaki, et al. ("*Owaki*"). Applicants respectfully traverse these rejections. Independent Claims 1, 11, 16, and 26 are allowable over the proposed combination of *Arcella* / *Koch* / *Kanamaru* or *Owaki* because this proposed combination would render *Arcella* "unsatisfactory for its intended purpose."<sup>1</sup> Accordingly, there is no suggestion or motivation to make the proposed combination.

The Office Action acknowledged that *Arcella* does not disclose, teach, or suggest "a laser nozzle coaxially aligned with the imaging device." Office Action, Page 3. Therefore, the Office Action proposed combining *Arcella* with either *Kanamaru* or *Owaki*, indicating that *Kanamaru* or *Owaki* disclose "using a camera in a coaxial position relative to the laser beam." *Id.* However, this proposed combination would render *Arcella*'s imager 90 inoperable for its intended purpose of measuring a vertical differential. With reference to FIGURES 10 and 11, *Arcella* discloses an imager 90 disposed adjacent a laser nozzle 58-2. The imager 90 capture reflections 140-1, 140-2 associated respectively with standoff distances Z1 and Z2 of the laser nozzle 58-2. By measuring the differences in these reflections 140-1, 140-2, *Arcella* indicates that a vertical differential,  $\Delta Z$ , can be calculated. See *Arcella*, column 4, line 60 through column 5, line 9. If, one were to modify the imager 90 for coaxial alignment with the laser 58-2 as proposed in the Office Action, *Arcella*'s imager 90, could not measure differences in reflections 140-1, 140-2. Therefore, the proposed combination of *Arcella* with either *Kanamaru* or *Owaki* would render *Arcella*'s imager 90 inoperable for its intended purpose of measuring the vertical differential. For at least this reason, a *prima facie* case of obviousness has not been established. Accordingly,

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<sup>1</sup> See MPEP 2143.01 ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Applicants submit that independent Claims 1, 11, 16, and 26 should be allowed as should their dependencies, Claims 2-10, 12-15, and 17-25. Reconsideration and favorable action are respectfully requested.

Claims 2, 7, 17, and 22 were rejected 35 U.S.C. §103(a) as being unpatentable over *Arcella* in view of *Koch* and either *Kanamaru* or *Owaki* as applied to Claims 1 and 16 above, and further in view of U. S. Patent No. 6,311,099 issued to Jasper, et al. ("*Jasper*"). Claims 3, 4, 18, and 19 were rejected 35 U.S.C. §103 (a) as being unpatentable over *Arcella* in view of *Koch*, *Jasper* and either *Kanamaru* or *Owaki* as applied to claims 2 and 17 above and further in view of article "Improving solid freeform fabrication by laser-based additive manufacturing" Hu et al. ("*Hu*"). Claims 5-8, 12, 13, 17, 20, 21, and 23 were rejected 35 U.S.C. §103 (a) as being unpatentable over *Arcella* in view of *Koch* and either *Kanamaru* or *Owaki* as applied to calims 1, 11, and 16 above and further in view of *Hu*.

Applicants respectfully traverse the above rejections. Claims 1-26 are allowable over the above applied references because the Examiner has improperly picked features from the references to the exclusion of the teachings of remainder of such references. For example, in setting forth the above rejections, the Examiner has picked features from 3, 4 and 5 references. To this end, Applicants respectfully remind the Examiner that in making a determination of obviousness, "the prior art as a whole must be considered. The teachings are to be viewed as they would have been viewed by one of ordinary skill." *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986) (emphasis added). "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." *Id.*

In the Examiner's "picking" of features from 3, 4, and 5 references, the Applicants point out that each of the systems in each of the references are specifically designed for a particular purpose. For example, the system in *Arcella* is designed for controlling powder aiming in a molten puddle. *See Arcella* abstract. The system in *Koch* is used to measure a height of a deposit. *See Koch* abstract. The system in *Jasper* is used to regulate a welding depth and focus position. *See Jasper* abstract. The system in *Kanamaru* is used to provide a compact device. *See Kanamaru* abstract. Applicants submit that features of these systems do not lend themselves in an obvious manner to being individually "picked" out for recombination without the Applicants' disclosure in hand.

Such is evident, for example, as described above with reference to the combination of features in *Arcella* with either *Kanamaru* or *Owaki* -- such a recombination destroying functionality of *Arcella*. As another example, *Koch* has a imaging device that is not co-axially aligned with a laser nozzle, thereby allowing measurement of height. The Examiner proposes taking certain feedback features alleged to be disclosed in *Koch* (namely, “controlling the laser power in a closed loop manner to control the accumulative dimensions of the work piece, ” Office Action, pages 3-4) without taking the non-coaxial alignment of the imaging device, which is used in the feedback feature. Therefore, Applicants respectfully submit that Claims 1-26 are nonobvious.

In setting forth the motivation to combine various references, Applicant’s additionally submit that Examiner’s alleged motivation in combining features from these references is speculative hindsight reconstruction. The conclusory reasoning provided in the Office Action falls well short of the required evidence of a motivation to combine and/or modify prior art references. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See, e.g., In Re Jones*, 958 F.2d 347, 351, 21 U.S.P.Q.2d 1941, 1944 (Fed. Cir. 1992) (“Conspicuously missing from this record is any evidence, other than the PTO’s speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at the claimed...salt.”).

To this end, the Examiner is reminded that “[t]he factual inquiry whether to combine references must be thorough and searching.” (In re Sang-Su Lee, 277 F.3d 1338, 1343). And that “[an] examiner’s conclusory statements . . . do not adequately address the issue of motivation to combine.” *Id.* Furthermore, simple hindsight speculation that “it would have been obvious” to make the proposed combination is insufficient under M.P.E.P.<sup>2</sup> guidelines and governing Federal Circuit case law.<sup>3</sup> Moreover, such statements and assumptions are

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<sup>2</sup> *See, e.g.,* M.P.E.P. §2145 X.C. (“The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.”).

<sup>3</sup> For example, in *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999), the Federal Circuit reversed a finding of obviousness by the Board of Patent Appeals and Interferences, explaining that evidence of a suggestion, teaching, or motivation to combine is essential to avoid impermissible hindsight reconstruction of an applicant’s invention:

Our case law makes clear that the best defense against the subtle but powerful attraction of hindsight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art*

inadequate to support a finding of motivation, which is a factual question that cannot be resolved on “subjective belief and unknown authority.”<sup>4</sup>

### **Section 102 Rejection**

Claims 1, 11, 16, and 26 were additionally rejected under 35 U.S.C. §102(e) as being anticipated by WO 03/07414 A1 issued to Fehrmann, et al. ("*Fehrmann*"). Applicants respectfully traverse this rejection. Applicants' prior response dated January 20, 2005, argued that *Fehrmann* did not disclose controlling the size of the molten pool. Applicants reiterate those arguments here without reproducing them. In response to those arguments, the Office Action has indicated the following:

“The temperature readings are proportionate to the size of the melt pool.”  
(Office Action , Page 2.)

“Clearly, the areas that are above the melting point of the workpiece are molten and part of the molten pool. In view of the physical property of thermal conduction, when a high temperature is measured, the molten pool is larger than contrasted with a lower temperature.” (Office Action, Page 5).

With the above response, no recitation is made to a disclosure in *Fehrman*. And Applicants were unable to find a discussion of a “proportionality of the temperature readings to the size of the melt pool” in *Fehrman*. Accordingly, should a rejection based on these assertions be maintained, Applicants respectfully request appropriate evidentiary support. If the Examiner is relying upon “common knowledge” or “well known” principles to supply the motivation to combine, Applicants request that a reference be provided in support of this position pursuant to M.P.E.P. § 2144.03. Alternatively, if the Examiner's personal knowledge is being relied on to supply the disclosure of the motivation to combine, Applicants respectfully request that an affidavit supporting such facts be provided pursuant to M.P.E.P. § 2144.03 and 37 C.F.R. 1.104(d)(2).

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*references.* Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999 (quoting *W.L. Gore & Assoc., Inv. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983)) (emphasis added) (citations omitted).

<sup>4</sup> See *In re Lee*, 277 F.3d 1338, 1344 (Fed. Cir. 2002).

**CONCLUSION**

Applicants have made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clear and apparent, Applicants respectfully request reconsideration and allowance of the pending claims.


Applicants believe no fees are due. However, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

If there are matters that can be discussed by telephone to advance prosecution of this application, Applicants invite the Examiner to contact its attorney at the number provided below.

Respectfully submitted,

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